

PROCEEDINGS OF THE CLUB

MEETING OF FEBRUARY 28, 1923

The meeting was held at the Museum of the New York Botanical Garden.

The budget committee, under the chairmanship of Dr. Barnhart, offered estimates for the year 1923.

The report of the budget committee was accepted and adopted. The resignation of Miss Hester M. Rusk as bibliographer was accepted with regret.

The first paper on the scientific program was by Dr. George M. Read on "Sorghum Smuts and their Relations to Sorghums." An abstract follows:

The sorghums are a group of important agronomic plants especially well adapted to the Great Plains area, including western Kansas, western Oklahoma, northwestern Texas, eastern New Mexico and eastern Colorado. They are annuals, belonging to the species *Holcus Sorghum* L., the wild types of which are natives of central and southern Africa. A closely related species is *Holcus halepense* L., or Johnson grass, which is perennial, and a native of southern Europe, western Asia and northern Africa.

The sorghums have been introduced into the United States from various parts of the world. The majority of them, however, including such groups as the Durra, Feterita, Milo, Kafir and most of the Sorgos, have come from Africa. The Kaoliangs have been introduced from northern China, in some sections of which they constitute a very important group of cultivated plants.

All the sorghums readily cross with one another and this in part accounts for the great diversity of the group as a whole. They are conveniently classified as follows:

1. Grass Sorghums, as Sudan Grass and Tunis Grass.
2. Broom Corn, grown extensively for the manufacture of brooms.
3. Grain Sorghums, including the diverse groups of Durra, Feterita, Milo, Kaoliang, Kafir and Shallu.
4. Sorgos, or sweet sorghums, grown mainly as forage crops and, to a less extent, for the production of sorghum syrup.

The sorghums are attacked by several different species of smuts, three of which are widely distributed and destructive. *Sphacelotheca Sorghi* (Link) Clint. is the covered kernel smut and is to be found wherever sorghums are grown. It is very destructive to the sorghum crop in India and the United States. The flowers are converted into enlarged smut balls; the spores are distributed in harvesting, threshing, and similar operations and contaminate the sound grain. Infection occurs in the seedling stage of the host by means of the seed-borne spores. *Sphacelotheca cruenta* (Kühn) Potter is the loose kernel smut of sorghum and seems to be less widely distributed and destructive than the covered kernel smut. In this disease the flowers are also converted into enlarged smut balls which break open and allow the escape of the spores. Infection seems to occur mainly by means of spores distributed on the seed. Infected plants are dwarfed and head out considerably earlier than the sound plants. The third smut is the head smut, *Sorosporium Reilianum* (Kühn) McAlpine. It is of special interest because it occurs on both maize and sorghum. It is the maize smut which regularly occurs in Australia. It is comparatively rare on this crop in the United States. In the head smut, usually the entire head or panicle is converted into a large mass of smut spores. Infection appears to take place mainly by means of spores present in the soil and not from contaminated seed.

A large number of varieties of sorghums belonging to the different groups have been tested to determine their susceptibility or resistance to the two kernel smuts. Most of the varieties have proved to be highly susceptible to both. There are, however, important exceptions; Feterita, the Milos, Dwarf Brown Kaoliang, as well as a few other varieties, have proved to be markedly resistant to both kernel smuts. The results with both smuts were quite similar, but one striking exception was observed. Darso, which is resistant to *Sphacelotheca Sorghi* has proved to be quite susceptible to *Sph. cruenta*.

The second paper was by Dr. H. A. Gleason, under the title, "Notes on British Guiana Plants". He indicated the parts of British Guiana which had received some botanical exploration and showed that most of this work had been confined to the immediate vicinity of the coast, and that few botanists had

penetrated far inland. The herbarium of the New York Botanical Garden, which recently did not contain more than 3,000 sheets from this country, has received important additions from the Jenman herbarium and from the collections of Hitchcock, Gleason, and de la Cruz, so that the number of sheets now available for study is in excess of 6,000. This is still a small representation of the flora, which is estimated to contain 6,000 species of flowering plants alone. These collections make it apparent that British Guiana still contains a very large number of undescribed species. Geographically, the province seems to comprise five zones: (1) the coastal lowlands, (2) the zone of low hills, (3) Mt. Roraima and the adjacent mountains, (4) the savanna region of the Hinterland, and (5) the range of low hills along the Brazilian border. The first three of these zones is densely wooded, the fourth is largely open grass land, and the botanical nature of the fifth is almost unknown. The chief additions to the flora are to be sought in zones three, four, and five, where numerous montane and Amazonian species are to be expected.

Adjournment followed.

MARSHALL A. HOWE,
Secretary.

Dr. A. S. Hitchcock, accompanied by his wife, left in May for South America, where he will make botanical collections. Three months will be spent in Ecuador, the work being a continuation of the co-operation between the U. S. Department of Agriculture, the Gray Herbarium, and the New York Botanical Garden in studying the botany of northern South America. About three months will be spent in Peru and Bolivia studying grasses for the Department of Agriculture.

Dr. R. M. Harper spent April and part of May in northern Arkansas making a survey for one of the larger religious denominations. Incidentally he made some botanical observations which we hope to publish before long.